

**OAK RIDGE NATIONAL LABORATORY  
MANAGED BY UT-BATTELLE, LLC  
POST OFFICE BOX 2008, OAK RIDGE, TENNESSEE 37831-6170**

**ORNL  
FOREIGN TRIP REPORT  
TA 429956**

**DATE:** October 20, 2018 – October 25, 2018  
**SUBJECT:** Attend ICSBEP, SINBAD, and IRPhEP Technical Review Group meeting as NCSP execution manager  
**TO:** Angela Chambers, Nuclear Criticality Safety Program Manager, National Nuclear Security Administration / NA-511/GTN, Pantex Plant, PO Box 30020, Amarillo, TX 79120-0020  
**FROM:** Douglas G. Bowen  
**MEETING:** ICSBEP, IRPhEP, and SINBAD Technical Review Groups  
**TITLE**  
**MEETING:** Nuclear Energy Agency Headquarters; Paris France  
**LOCATION**  
**MEETING:** Monday, October 22, 2018 – Thursday, October 25, 2018  
**DATES**  
**ATTENDEES:** William Marshall, Doug Bowen; others from SNL, LANL, and LLNL  
**ON BEHALF**  
**OF NCSP**  
**MEETING:** ORNL's participation in the ICSBEP, SINBAD, and IRPhEP Technical Review  
**BENEFIT TO** Group (TRG) meetings is identified as a planned foreign trip in the NCSP 2019-2023  
**NCSP** Five Year Plan. Dr. Bowen is criticality safety expert and program execution manager of the DOE/NNSA Nuclear Criticality Safety Program (NCSP), and his participation in the ICSBEP meetings is intended to observe and participate in these meetings to determine how they are organized and executed to understand better how NCSP integral experiments are documented in the ICSBEP handbook as high quality integral benchmarks. These high-quality benchmarks can then be used by DOE, NNSA, and commercial facilities throughout the country to perform validations supporting nuclear criticality safety analyses. Similarly, applying the expertise gained through research and applications on criticality safety validation to the shielding (SINBAD) and reactor physics (IRPhEP) benchmark collections will maintain or improve the standards supporting validation in these other areas. Dr. Bowen also had one-on-one meetings with NEA/OECD staff to discuss the future of the ICSBEP, IRPhEP, and SINBAD handbooks/databases and future collaboration with the NCSP.  
**MEETING** The purpose of the trip is to participate in Technical Review Group (TRG) meetings  
**PURPOSE:** related to proposed benchmarks for criticality safety, shielding, and reactor physics experiments and to meet with NEA/OECD staff to discuss future NCSP collaborations on similar topics. As the NCSP execution manager, it is important for NCSP management to understand the process of how completed NCSP-funded experiments end up in the ICSBEP handbook as high quality benchmarks. This

process is the highlight of sharing these expensive, high-quality, experiments with the NCSP community.

**SITES  
VISITED:**

Nuclear Energy Agency Headquarters, Paris, France

**ABSTRACT:**

The ICSBEP, SINBAD, and IRPhEP Technical Review Group (TRG) meetings ensure a rigorous review of proposed benchmarks. These high-quality benchmarks can then be used by DOE, NNSA, and commercial facilities throughout the country to perform validations supporting nuclear criticality safety analyses. Similarly, applying the expertise gained through research and applications on criticality safety validation to the shielding (SINBAD) and reactor physics (IRPhEP) benchmark collections will maintain or improve the standards supporting validation in these other areas.

**Access to the information in this report is limited to those indicated  
on the distribution list and to U.S. Government Agencies and their Contractors.**

## **REPORT OF FOREIGN TRAVEL**

**Douglas G. Bowen  
Paris, France  
October 20 – 25, 2018**

### **PURPOSE OF TRAVEL**

The purpose of the trip is to participate in Technical Review Group (TRG) meetings related to proposed benchmarks for criticality safety, shielding, and reactor physics experiments and to meet with NEA/OECD staff to discuss future NCSP collaborations on similar topics. As the NCSP execution manager, it is important for NCSP management to understand the process of how completed NCSP-funded experiments end up in the ICSBEP handbook as high quality benchmarks. This process is the highlight of sharing these expensive, high-quality, experiments with the NCSP community.

### **Persons Contacted at NEA Headquarters**

The chair of the ICSBEP and IRPhEP Technical Review Groups is John Bess of INL. NEA participation for these meetings included Ian Hill, Tatiana Ivanova, Julie-Fiona Martin and Shuichi Tsuda. The chair for the SINBAD meeting was Pedro Ortego from SEA in Spain. A range of individuals from different institutions at different countries make up the Technical Review Groups and participated in the associated meetings. In the appendix, attendance sheets are provided to document those in attendance at the meetings.

### **Itinerary**

10/20/18 – 10/21/18	Travel from Knoxville, USA to Paris, France
10/22/18	Paris, France (ICSBEP TRG)
10/23/18	Paris, France (SINBAD TRG)
10/24/18 – 10/25/18	Paris, France (IRPhEP TRG)
10/25/18	Travel from Paris, France to Knoxville, TN

## **DISTRIBUTION**

1. Douglas G. Bowen ([bowendg@ornl.gov](mailto:bowendg@ornl.gov))
2. Angela Chambers ([angela.chambers@nnsa.doe.gov](mailto:angela.chambers@nnsa.doe.gov))
3. Lori Scott ([Lorisc0tt@aol.com](mailto:Lorisc0tt@aol.com))

**OAK RIDGE NATIONAL LABORATORY  
MANAGED BY UT-BATTELLE, LLC  
POST OFFICE BOX 2008, OAK RIDGE, TENNESSEE 37831-6170**

**ORNL  
FOREIGN TRIP REPORT  
TA 429991**

**DATE:** October 20, 2018 – October 26, 2018  
**SUBJECT:** Attend ICSBEP, SINBAD, and IRPhEP Technical Review Group meetings  
**TO:** Angela Chambers, Nuclear Criticality Safety Program Manager, National Nuclear Security Administration / NA-511/GTN, Pantex Plant, PO Box 30020, Amarillo, TX 79120-0020

**FROM:** William Jay Marshall

**MEETING:** ICSBEP, IRPhEP, and SINBAD Technical Review Groups  
**TITLE**  
**MEETING:** Nuclear Energy Agency Headquarters; Paris France  
**LOCATION**  
**MEETING:** Monday, October 22, 2018 – Thursday, October 25, 2018  
**DATES**  
**ATTENDEES:** William Marshall, Doug Bowen; others from SNL, LANL, and LLNL  
**ON BEHALF**  
**OF NCSP**  
**MEETING:** ORNL's participation in the ICSBEP, SINBAD, and IRPhEP Technical Review  
**BENEFIT TO** Group (TRG) meetings is identified as a planned foreign trip in the NCSP 2019-2023  
**NCSP** Five Year Plan. Dr. Marshall is an expert on benchmarks and validation, and his participation in the ICSBEP meetings ensures a rigorous review of proposed benchmarks. These high-quality benchmarks can then be used by DOE, NNSA, and commercial facilities throughout the country to perform validations supporting nuclear criticality safety analyses. Similarly, applying the expertise gained through research and applications on criticality safety validation to the shielding (SINBAD) and reactor physics (IRPhEP) benchmark collections will maintain or improve the standards supporting validation in these other areas.

**MEETING** The purpose of the trip is to participate in Technical Review Group (TRG) meetings  
**PURPOSE:** related to proposed benchmarks for criticality safety, shielding, and reactor physics experiments.

**SITES** Nuclear Energy Agency Headquarters, Paris, France  
**VISITED:**

**ABSTRACT:** The ICSBEP, SINBAD, and IRPhEP Technical Review Group (TRG) meetings ensure a rigorous review of proposed benchmarks. These high-quality benchmarks can then be used by DOE, NNSA, and commercial facilities throughout the country to perform validations supporting nuclear criticality safety analyses. Similarly, applying the expertise gained through research and applications on criticality safety validation to the shielding (SINBAD) and reactor physics (IRPhEP) benchmark collections will maintain or improve the standards supporting validation in these other areas.

**Access to the information in this report is limited to those indicated  
on the distribution list and to U.S. Government Agencies and their Contractors.**

## **REPORT OF FOREIGN TRAVEL**

**William Jay Marshall  
Paris, France  
October 20 – 26, 2018**

### **PURPOSE OF TRAVEL**

The purpose of the trip was to attend the Technical Review Group meetings for the International Criticality Safety Benchmark Evaluation Project and the International Reactor Physics Experiment Evaluation Project. The Shielding Integral Benchmark Archive and Database project also had a review meeting, in an effort to establish the path forward for this project.

### **Persons Contacted at NEA Headquarters**

The chair of the ICSBEP and IRPhEP Technical Review Groups is John Bess of INL. NEA participation for these meetings included Ian Hill, Tatiana Ivanova, Julie-Fiona Martin and Shuichi Tsuda. The chair for the SINBAD meeting was Pedro Ortego from SEA in Spain. A range of individuals from different institutions at different countries make up the Technical Review Groups and participated in the associated meetings.

### **Itinerary**

10/20/18 – 10/21/18	Travel from Knoxville, USA to Paris, France
10/22/18	Paris, France (ICSBEP TRG)
10/23/18	Paris, France (SINBAD TRG)
10/24/18 – 10/25/18	Paris, France (IRPhEP TRG)
10/26/18	Travel from Paris, France to Knoxville, TN

## DISTRIBUTION

1. Doug G. Bowen ([bowendg@ornl.gov](mailto:bowendg@ornl.gov))
2. Angela Chambers ([angela.chambers@nnsa.doe.gov](mailto:angela.chambers@nnsa.doe.gov))
3. Lori Scott ([Lorisc0tt@aol.com](mailto:Lorisc0tt@aol.com))